REMARKS

Claims 1-2 again stand rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art ("the AAPA") in view of Terashita et al. (U.S. 6,057,038). Applicants respectfully traverse this rejection because a *prima facie* case of obviousness has not been established against the present invention. The rejection does not identify every feature and limitation of claim 1 of the present invention within the cited prior art, and the rejection does not indicate how the proposed combination of prior art references reads upon the present invention.

The Examiner acknowledges that the AAPA fails to disclose optical cleaning of a substrate, as well as, a resin film and spacers on the substrate, by a light source having a wavelength range of that recited in claim 1. The Examiner cites only the Terashita reference for somehow teaching these features of the method of the present invention. The portions cited from the Terashita reference, however, do not actually disclose all of the features of the present invention as claimed.

For example, although the Examiner is correct to assert that Terashita does teach *some* use of an excimer laser having the wavelength range of claim 1 as a substitute for a low pressure mercury lamp, the assertion is incorrect, however, that Terashita also teaches to use this excimer lamp to optically clean the surface of a substrate where the pillar spacers have been formed. Terashita teaches only that the use of the excimer laser is used to clean the transparent conductive films, the gate insulating film, and the interlayer insulating film, in order to improve the adhesion between these several layers on top of one another. The

rejection does not indicate where the reference also teaches anything about using the laser to optically clean the portion of the substrate containing the resin film and the spacers formed from the resin film, as in the present invention.

This failure to indicate any such teaching or suggestion within the Terashita reference is significant. Claim 1 of the present invention even recites that the optical cleaning is to avoid reduction in the thickness of the pillar spacers. The portion of the claim renders the present invention materially distinct from the prior art in the claimed method. Section 2143.03 of the MPEP requires, in order to establish a *prima facie* case of obviousness, the stated rejection must indicate where each and every feature and limitation of the claimed invention is taught or suggested by the prior art. In the present case, however, this requirement has not been satisfied.

As last amended, claim 1 of the present invention did not merely feature the optical cleaning of the substrate surface. In fact, claim 1 featured that the step of optically cleaning the surface of the substrate was performed where the pillar spacers were formed. This particular feature of the claim has not been given full consideration. The Terashita reference does not teach or suggest anything regarding the pillar spacers or the resin film from which the pillar spacers are formed. Terashita's use of the excimer laser is only discussed with respect to the cleaning of the transparent conductive films, and the gate and interlayer insulating films. (See col. 9, lines 44-46). The rejection does not indicate any teaching or suggestion within the Terashita reference for performing a similar optical

cleaning step after the resin film and the pillar spacers are formed over these other various layers that have been cleaned.

Claim 1 of the present invention is a method claim, and all of recited steps, as well as any order to these steps required by the plain language of the claim, must be considered. The optical cleaning step of the present invention clearly recites that it is performed only after the pillar spacers "have been formed." Accordingly, because the outstanding rejection fails to indicate where these particular features of the present invention is taught or suggested within the cited prior art, the *prima facie* case of obviousness is deficient on its face.

The *prima facie* case is further deficient because the rejection does not demonstrate how any features of the present invention are obvious or inherent from the prior art, as asserted by the Examiner. As taught in the AAPA, even the low pressure mercury lamp, which has a higher peak wavelength than the excimer laser, only penetrates to a depth of about 30nm. The thickness tolerances of the resin layer alone are $\pm$ 100nm, and this tolerance is in addition to the thickness of the resin layer, and also the pillar spacers. It could not be obvious therefore, to expect that Terashita's film layers would even be cleaned by the excimer layer after the resin film and the spacers have been formed above these film layers. Once the resin layer and pillars are formed, the underlying film layers may not be cleaned according to the requirements of Terashita's disclosure. The additional step of cleaning the resin layer cannot therefore be inherent or obvious from Terashita. For at least these further reasons therefore, the outstanding Section 103 rejection is respectfully traversed.

The avoidance of height reduction, as affirmatively recited in the claimed method steps of the present invention, is not merely a "newly discovered use" of the fewer processing steps described by Terashita. As discussed above, Terashita is specifically drawn to only a problem of improving adhesion between different film layers. These film layers, however, are not addressed by the step of the present invention in which height reduction is avoided. The present invention affirmatively recites a step where the height reduction of the pillar spacers is avoided, and the Examiner has not indicated where the prior art even considers or addresses this problem.

As described above, height reduction cannot be addressed during the different processing steps from Terashita, which must be performed well before the formation of the resin layer, or the pillar spacers that are formed from the resin layer. The optical cleaning step of the present invention is thus an additional step that the present rejection fails to identify within either cited prior art reference. Obviousness in the present case is not established merely by asserting that excimer layers may be used for optical cleaning in general. To be maintained, the obviousness rejection must also be able to demonstrate where it is taught or suggested to implement such an optical cleaning step for each and every claimed step of the present invention as well. Because no affirmative teaching or suggestion has been cited from the prior art that demonstrates these features, the rejection is again further traversed.

For all of the foregoing reasons, Applicants submit that this Application, including claims 1-2, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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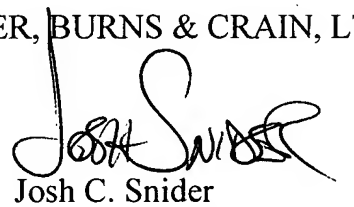
By 
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